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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

10/603,777 06/26/2003 Jea-Woan Lee 1567.1047 5869

49455 7590 12/22/2006
STEIN, MCEWEN & BUI, LLP
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

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| EXAMINER |
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WEINER, LAURA S

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| ART UNIT | PAPER NUMBER |
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1745

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS 12/22/2006 PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/603,777

Applicant(s)

LEE ET AL.

Examiner

Laura S. Weiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 14-21, 23, 24, 26-29, 33, 37-41, 47 and 63-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 65 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 14-21, 23, 24, 26-29, 33, 37-41, 47, 63 and 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11-22-06 has been entered.

Response to Arguments

2. Applicant's arguments filed 10-25-06 have been fully considered but they are not persuasive.

Applicant argues that Tanaka does not teach a substrate having a mean roughness of 30-4000 Å and the substrate is a polymer film but the claim does not have to comprise a substrate having a polymer film but can still comprise a metal foil or a metal film. Tanaka teaches that the surface of the support can be roughened by anodization, etc. and the surface-roughness of the support is on the order of 0.1-10µm [1000-100,000 Å]. Therefore teaching having a mean roughness of 30-4000 Å. Tanaka teaches a negative electrode comprises lithium and the negative electrode current collector comprises copper foil ***[teaching a substrate which is a metal foil or metal film having a lithium layer coated on the substrate]***.

Election/Restrictions

3. Since the elected species was not found, a negative electrode comprising a substrate comprising a polymer film deposited with metal having a mean roughness of 30-4000 Å and a lithium layer coated on the substrate has been found allowable. The next species searched was a substrate comprising a metal having a mean roughness of 30-4000 Å and a lithium layer coated on the substrate.

Claim Rejections - 35 USC § 112

4. Claims 1-6, 8, 14-21, 23-24, 26-29, 33, 37-41, 47, 63-64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 63 and 64 are rejected because it is unclear what is the difference between "a conductive polymer film" and "a polymer film incorporated with a conductive agent".

Claim Rejections - 35 USC § 102

5. Claims 1-3, 6, 8, 19-21, 23-24, 26, 29, 41, 64 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (5,462,820).

Tanaka teaches in column 2, lines 29-37, a nonaqueous battery comprising a negative electrode, a positive electrode, a separator, an electrolyte, etc. Tanaka teaches in column 6, that the electrode sheet is pressed and the support is treated to

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make the surface thereof uneven to improve the adhesion of the electrode material.

The surface of the support can be roughened by anodization, etc. and the surface-

roughness of the support is on the order of 0.1-10um [***a mean roughness of 1000-***

100,000 Å]. The negative electrode comprises lithium [***lithium layer coated on the***

substrate]. Tanaka teaches in column 16, Example 1, a battery comprising a positive

electrode current collector comprises aluminum foil and the active material is LiCoO₂;

that the negative electrode current collector comprises copper foil [***substrate is a metal***

foil] and a microporous separator of polypropylene. Tanaka teaches in column 18,

claim 2, that the negative electrode active material comprises elemental lithium or

alloys, Li-Al alloys, etc.

Allowable Subject Matter

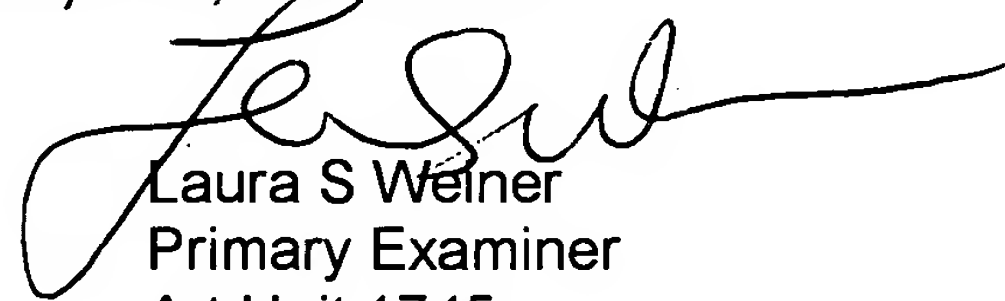
6. Claim 65 is allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S. Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Laura S Weiner
Primary Examiner
Art Unit 1745

December 20, 2006